

### **REMARKS/ARGUMENTS**

Claims 30 through 89 are pending in this application. The Office Action allows claims 80 through 89. The Office Action asserts that claims 32-34, 36, 48, 49, 57, 59-61, 65-67, and 69-70 are allowable if re-written into independent form. Claims 30, 46 and 63 have been amended to clarify that the hydrophilic membrane is non-porous. Support for this amendment is found at least at page 4, lines 10-11 of the specification.

The Office Action rejects claims 30, 35, 37, 40-43, 46, 47, 50, 51, 53, 54, 63, 71, 74, 75, 76 and 77 under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 4,805,343 to Patterson et al. (hereinafter "Patterson"). The Office Action asserts that Patterson discloses a hydrophilic membrane. Applicants respectfully assert that Patterson fails to disclose or suggest the features of claims 30, 46 and 63 of a hydrophilic membrane that is non-porous.

Patterson discloses a tube 18 made of cellulose acetate fibers for dispensing water to a plant. (col. 4, lines 40-45). The Patterson tube dispenses liquid water by being porous:

Fibers in accordance with this invention have been produced which are asymmetric with respect to osmotic mechanisms, but are opposite from previous fibers because the flow of pure water is from the inside of the fiber to the outside. Moreover, with flow outward through the tube walls instead of inward, the **pores** of the tube are self cleaning, and -in fact- show an increase in flow with the passage of time. (col. 5, lines 14-21)(emphasis added).

Moreover, the Patterson device is intended to provide an "osmotic valve" via the formation of pores in tube 18:

#### **MECHANICS OF PORE FORMATION**

Observations were made of cellulose acetate in a flat membrane form. With the membrane on a hot surface and treated with a solvent or a plasticizer, and with air above the membrane, it appears that bubbles of gas develop and burst leaving relatively large, funnel shaped cavities on the upper surface, much in the manner of a pancake batter before it is turned over. Examination of the bottom of the membrane reveals a much denser structure. With such an asymmetric permeability membrane, the preferred

water flow is from the **large pore side** to the **small pore side**. (col. 6, lines 38-50)(emphasis added).

Patterson does not disclose or suggest the use of a hydrophilic membrane that is non-porous. Additionally, there is no motivation to modify the Patterson tube to make it a non-porous membrane. The objective of the Patterson device is to provide "fibers [that] serve as an osmotic valve to dispense water upon demand by the plants." (col. 1, lines 9-10). To accomplish this objective, the Patterson tube is made porous (as described above) so that osmosis or reverse osmosis causes the passage of liquid water through the porous membrane:

#### THE OSMOTIC VALVE

The discussion of hollow fiber dispensing tube 18 given above was concerned with providing water from a reservoir to the roots of a plant through the fiber wall. It should not be overlooked, however, that this fiber wall is a permeable membrane which will also permit water to pass into this hollow fiber from the outside. In general, water on each side of the membrane--or in this case inside and outside the hollow fiber--will be at a hydraulic pressure which is the resultant of such factors as the hydrostatic pressure head, solids dissolved or suspended in the water, and the temperature of the water or water mixture. When the hydraulic pressure on one side of the fiber wall exceeds that on the other side by at least the osmotic pressure, water will pass through the wall to the side of the lower hydraulic pressure. Thus the fiber wall acts much as a pressure relief valve which will permit water flow when the pressure rises sufficiently. (col. 4, lines 46-65).

If the Patterson tube were modified to be made from a non-porous membrane, the objective of dispensing of liquid water and creating an "osmotic valve" would be obviated.

Claims 35, 37, 40-43, 47, 50, 51, 53, 54, 71, 74, 75, 76 and 77 depend from claims 30, 46 and 63, respectively, and, thus, are also not anticipated, nor obvious, over Patterson.

The Office Action rejects claims 31, 38, 30, 44, 45, 55, 58, 62, 64, 68, 73, 78, and 79 under 35 U.S.C. §102 as being anticipated by Patterson. Claims 31, 38, 30, 44, 45, 55, 58, 62, 64, 68, 73, 78, and 79 depend from claims 30, 46 and 63, respectively, which include the feature of a non-porous hydrophilic membrane. For the reasons described above with respect to claims 30, 46 and 63, Patterson does not disclose or suggest this feature. Thus, claims 31, 38, 30, 44, 45,

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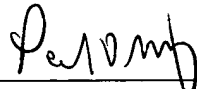
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55, 58, 62, 64, 68, 73, 78, and 79 are not obvious in view of Patterson.

In view of the above, applicants respectfully urge that the rejections and objection be reconsidered and withdrawn, and that this application be passed to allowance.

Sincerely,

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Date

  
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